

## WE CLAIM:

1. A system for measuring the delivery of electrical energy from an energy supplier to a consumer through an electric circuit, said system comprising:
  - a digital network;
  - first and second devices coupled with said digital network, said first and second devices each comprising:
    - at least one sensor coupled with said electric circuit and operative to sense at least one power parameter in said electric circuit and generate at least one analog signal indicative thereof;
    - at least one analog to digital converter coupled with said at least one sensor and operative to convert said at least one analog signal to at least one digital signal representative thereof;
    - a first processor coupled with said at least one analog to digital converter and operative to generate at least one computed value from said at least one digital signal; and
    - a plurality of communication ports, each of said communication ports operative to receive communications from said digital network and transmit said communications to said first processor, said communication ports being coupled with said digital network, wherein each of said first and second devices are operative to engage in a plurality of substantially simultaneous communications from said communication ports;
    - wherein said first device is further operative to communicate with said second device over said digital network.
2. The system of claim 1, wherein at least one of said first and second devices further comprises a local synchronization circuit coupled with said first processor which outputs a timing clock signal to said first processor.
3. The system of claim 1, said first device further comprising a communications module, said communications module operative to allow a device coupled to the digital network to communicate with said first processor of said first device.

4. The system of claim 1, wherein said first device is further operative to communicate with said second device over said digital network substantially in real time.
5. The system of claim 1, wherein said plurality of communication ports comprises at least one Ethernet port.
6. The system of claim 1, wherein said plurality of communication ports comprises at least two RS232 ports.
7. The system of claim 1, wherein said plurality of communication ports comprises at least two RS485 ports.
8. The system of claim 1, wherein said plurality of communication ports comprises at least one Ethernet port and at least one of a RS232 port and a RS485 port.
9. The system of claim 1, wherein each of said plurality of communications ports comprises at least one communications parameter, said at least one communications parameter of a first of said plurality of communications ports is configurable independent of a configuration of said at least one communications parameter of a second of said plurality of communications ports.
10. The system of claim 9, wherein said at least one communications parameter comprises a baud-rate.
11. The system of claim 9, wherein said at least one communications parameter comprises a communications protocol.
12. The system of claim 9, wherein said at least one communications parameter comprises a physical communication mode, said physical communication mode further comprising at least one of RS232 and RS485.
13. The system of claim 9, wherein said at least one communications parameter comprises a Request to Send (“RTS”) level.
14. The system of claim 9, wherein said at least one communications parameter comprises a Clear to Send (“CTS”) level.
15. The system of claim 9, wherein said at least one communications parameter comprises a Request to Send (“RTS”) delay.

16. The system of claim 9, wherein said at least one communications parameter comprises a transmission delay.
17. The system of claim 9, wherein said at least one communications parameter comprises a unit identifier.
18. The system of claim 1, wherein at least one of said plurality of communications ports is coupled with a second processor, said second processor further coupled with said first processor.
19. The system of claim 18, wherein said second processor comprises a communications processor.
20. The system of claim 1, wherein said first processor comprises a communications processor.
21. A method for measuring the delivery of electrical energy from an energy supplier to a consumer through an electric circuit using a digital network, said method comprising:
  - (a) sensing, by first and second devices coupled with said electric circuit, at least one power parameter in said electric circuit and generating at least one analog signal indicative thereof;
  - (b) converting said at least one analog signal to at least one digital signal representative thereof;
  - (c) generating at least one computed value from said at least one digital signal; and
  - (d) receiving communications from said digital network and processing said communications;
  - (e) engaging in a plurality of substantially simultaneous communications over said digital network, wherein at least one of said substantially simultaneous communications comprises at least one communication between said first and second devices.
22. The method of claim 21 further comprising:
  - (f) receiving a time synchronization request by at least one of said first device and said second device.

23. The method of claim 21 further comprising:
- (f) transmitting a time synchronization request by at least one of said first device and said second device.
24. A system for measuring the delivery of electrical energy from an energy supplier to a consumer through an electric circuit, said system comprising:
- a digital network;
  - first and second devices coupled with said digital network, said first and second devices each comprising:
    - sensing means for sensing at least one power parameter in said electric circuit and generating at least one analog signal indicative thereof;
    - converting means for converting said at least one analog signal to at least one digital signal representative thereof;
    - processing means for generating at least one computed value from said at least one digital signal; and
    - communicating means for receiving communications from said digital network and transmitting said communications to said processing means, wherein each of said first and second devices are operative to engage in a plurality of substantially simultaneous communications using said communicating means;
  - wherein said first device is further operative to communicate with said second device over said digital network.